



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D119-796-141
Job Sheet 194133



Part No: D119-796-141

Job Qty: 1 pcs

Part Name: Fwd Crosstube Installation Without Step (No Hardware)



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 4/25/19

Job Tracking No:

Due Date: 6/25/19

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: DRWG D119-796-141 REV.H IPP REV:C 14.11.19 AS PER REV.C DD VERF:JLM IPP REV:D 14.12.12 AS
PER REV:pd1 DD VERF:JLM IPP REV:E 15.02.11 AS PER REV F JLM VERIFIED BY:DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier	Sign-off
					Setup Hrs	Run Hrs		
130	Crosstubes - Bend - 1	1 pcs	6/25/19	6/25/19	0.00	3.85	Crosstubes - Bend	BB/4P 7/3/2019
140	QC 15	1 pcs	6/25/19	6/25/19	0.00	0.00	QC 15 - 12	
							QC 15 - 3	DAS
							QC 15 - 47	47
							QC 15 - 49	9-89
							QC 15 - 58	
							QC 15 - 9	
							QC 15 - 68	
145	Crosstubes - 2 - B4B	1 pcs	6/25/19	6/25/19	0.00	3.06	Crosstubes - 1 - B4B	
							Crosstubes - 2 - B4B	GP/DB 19-07-08
							Crosstubes - 3 - B4B	
							Crosstubes - 4 - B4B	
150	Crosstubes - 3 - B4B	1 pcs	6/25/19	6/25/19	0.00	3.06	Crosstubes - 1 - B4B	
							Crosstubes - 2 - B4B	BB/6P 19-78
							Crosstubes - 3 - B4B	
							Crosstubes - 4 - B4B	
160	Crosstubes - 4 - B4B	1 pcs	6/25/19	6/25/19	0.00	1.49	Crosstubes - 1 - B4B	
							Crosstubes - 2 - B4B	
							Crosstubes - 3 - B4B	
							Crosstubes - 4 - B4B	BB 8/1/2019
175	QC 7	1 pcs	6/25/19	6/25/19	0.00	0.00	QC 7 - 10	
							QC 7 - 13	
							QC 7 - 14	
							QC 7 - 15	
							QC 7 - 17	
							QC 7 - 18	
							QC 7 - 19	
							QC 7 - 2	
							QC 7 - 28	
							QC 7 - 3	

			QC 7 - 30	
			QC 7 - 34	
			QC 7 - 36	
			QC 7 - 37	
			QC 7 - 41	
			QC 7 - 47	
			QC 7 - 48	
			QC 7 - 51	
			QC 7 - 58	
			QC 7 - 59	
			QC 7 - 60	
			QC 7 - 9	
			QC 7 - 68	
			QC 7 - 50	
			QC 7 - 67	
			QC 7 - 40	
180 Outsource - 2 - NDT per QSI038	1 pcs	6/25/19	SKY002-VC	2
190 Packaging 2-1 - Recelve - B4B	1 pcs	6/25/19	Packaging 2 - 1 - B4B	
			Packaging 2 - 2 - B4B	
			Packaging 2 - 3 - B4B	
			Packaging 2 - 5 - B4B	
			Packaging 2 - 4 - B4B	
			Packaging 2 - 6 - B4B	
			Packaging 2 - 7 - B4B	
			Packaging 2 - 8 - B4B	
			Packaging 2 - 9 - B4B	
			Packaging 2 - 10 - B4B	
			Packaging 2 - 11 - B4B	
			Packaging 2 - 12 - B4B	
			Packaging 2 - 13 - B4B	
			Packaging 2 - 14 - B4B	
			Packaging 2 - 15 - B4B	
			Packaging 2 - 16 - B4B	
			Packaging 2 - 17 - B4B	
			Packaging 2 - 18 - B4B	
			Packaging 2 - 19 - B4B	
			Packaging 2 - 20 - B4B	
			Packaging 2 - 21 - B4B	
			Packaging 2 - 22 - B4B	
			Packaging 2 - 23 - B4B	
			Packaging 2 - 24 - B4B	
			Packaging 2 - 25 - B4B	
			Packaging 2 - 26 - B4B	
			Packaging 2 - 27 - B4B	
			Packaging 2 - 28 - B4B	
			Packaging 2 - 29 - B4B	
			Packaging 2 - 30 - B4B	
			Packaging 2 - 31 - B4B	
			Packaging 2 - 32 - B4B	
			Packaging 2 - 33 - B4B	
			Packaging 2 - 34 - B4B	
			Packaging 2 - 35 - B4B	
			Packaging 2 - 36 - B4B	
200 QC 6	1 pcs	6/25/19	QC 6 - 9	
			QC 6 - 68	
			QC 6 - 61	
			QC 6 - 40	
230 Spray Paint - 2 - B4B	1 pcs	6/25/19	Spray Paint - 1 - B4B	

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240 QC 14	1 pcs	6/25/19	0.00 0.00	Spray Paint - 2 - B4B	
				Spray Paint - 3 - B4B	
				Spray Paint - 4 - B4B	
				QC 14 - 15	
				QC 14 - 2	
				QC 14 - 34	
				QC 14 - 41	
				QC 14 - 51	
				QC 14 - 58	
				QC 14 - 59	
				QC 14 - 9	
				QC 14 - 68	
				QC 14 - 40	AUG 1 2 2019 DAS 40
242 Crosstubes - 5 - B4B	1 pcs	6/25/19	0.00 3.06	QC 14 - 19	9-89
				Crosstubes - 1 - B4B	
				Crosstubes - 2 - B4B	
				Crosstubes - 3 - B4B	
				Crosstubes - 4 - B4B	AK 19-8-12
244 QC 5	1 pcs	6/25/19	0.00 0.00	QC 5 - 10	
				QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	AUG 16 2019 DAS 68
				QC 5 - 9	9-89
				QC 5 - 50	
				QC 5 - 30	DAS 40
				QC 5 - 40	AUG 1 2 2019 DAS 40
246 Spray Paint - 3 - B4B	1 pcs	6/25/19	0.00 1.36	QC 5 - 40	AK 19-8-21 9-89
				Spray Paint - 1 - B4B	
				Spray Paint - 2 - B4B	
				Spray Paint - 3 - B4B	
				Spray Paint - 4 - B4B	
248 Spray Paint - 4 - B4B	1 pcs	6/25/19	0.00 1.36	Spray Paint - 1 - B4B	
				Spray Paint - 2 - B4B	AK 19-8-22
				Spray Paint - 3 - B4B	
				Spray Paint - 4 - B4B	
250 QC 14	1 pcs	6/25/19	0.00 0.00	QC 14 - 15	
				QC 14 - 2	
				QC 14 - 34	
				QC 14 - 41	
				QC 14 - 51	
				QC 14 - 58	
				QC 14 - 59	
				QC 14 - 9	
				QC 14 - 68	
				QC 14 - 40	AUG 23 2019 DAS 68
				QC 14 - 19	9-89
252 Crosstubes - 6 - B4B	1 pcs	6/25/19	0.00 3.06	Crosstubes - 1 - B4B	
				Crosstubes - 2 - B4B	
				Crosstubes - 3 - B4B	
				Crosstubes - 4 - B4B	AK 19-8-25
260 QC 5	1 pcs	6/25/19	0.00 0.00	QC 5 - 10	

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				QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	DAS AUG 26 2019 68
				QC 5 - 9	9-89
				QC 5 - 50	
				QC 5 - 30	
				QC 5 - 40	
275 DC - 1 - B4B	1 pcs	6/25/19	0.00 0.00	DC - 1 - B4B	NR
				DC - 2 - B4B	
290 Packaging 3-1 - Stock - B4B	1 pcs	6/25/19	0.00 0.00	Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	AB 17-8-26
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	
300 QC 21 - FG	1 pcs	6/25/19	0.00 0.00	QC 21 - FG - 21	DAS
				QC 21 - FG - 70	70 AUG 26 2019
				QC 21 - SA - 53	9-89
Part Op 130 - CNC Bend Crosstube (CNC Alpha 160 Bender) Bend tube as per Dwg D119-796-141 using CNC bender program					
Descriptions: 140 - QC15 (QC15- Crosstube Dimensional Check)					

145 - Crosstubes-1 (Crosstubes) 1- CUT TUBE AT HEIGHT ON FAI SHEET 2- VERFY HEIGHT: _____ BY QC15
LEVEL INSPECTOR: _____ 3- DEBURR CUT SURFACE
150 - ***** ENSURE PROPER JIG POSITIONING ***** ENSURE PROPER JIG POSITIONING
***** 1-DRILL TUBE AS PER DWG USING DT _____ 2- DRILL RIVET HOLES USING DT8787 FWD 3-
DEBURR AND C/SINK RIVET HOLES AS PER DWG 4- FLIP TUBE, REPEAT STEP 2 AND 3 5- SCRIBE PART# AND
BATCH# USING VIBRATING STYLUS ON INSIDE OF CUFF AS PER DWG D119-796-141 6- INSPECT AND REMOVE
ALL MARKS FROM TUBE WITHIN LIMITS ON DWG D119-796-141
160 - HandFinish5 (Crosstubes Chemical Conversion) ***IMMEDIATELY AFTER GRINDING*** 1- handfinish X-TUBE
INSIDE AND OUT 2- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT AS PER QSI005.
175 - QC7-1 (QC7-Inspect Chemical Conversion Coat)
180 - Outsource2 (Outsource process - NDT per QSI038 4.1) *** WEAR LATEX GLOVES WHEN HANDLING
CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038Or Issue P/O: _____ LPI as per ASTM 1417 Level 2
Attach copy of NDT results to work order
190 - Packaging2 (Receive & Inspect for Damage & Mat'l Certs) ReceiveEnsure copy of NDT results attached to work
order.
200 - QC6 (QC6- All purchased or subcontracted products) *** WEAR LATEX GLOVES WHEN HANDLING
CROSSTUBE*** Inspect for damage & ensure results are as per Dwg D119-796-141
230 - Spray Paint (Spray Paint / NDT Room) ***VERIFY BY _____ BATCH # TO MATCH W/O
***VERIFY BY _____ PART # TO MATCH W/O ***MASK SCRIBE
B# & P# AND VERIFY*** 1- Prime inside of tube. 2- Install nut plates as per dwg (D2873-043) 3- Mask cuffs per note#2.
4- Prime exterior of tube per QSI005. Primer Batch: 5187223 Start Time: _____ Finish Time: _____
240 - QC14 (QC14- Inspect Spray Paint) ***VERIFY BY _____ BATCH # TO MATCH W/O
242 - Crosstubes-1 (Crosstubes) Assemble as per dwg D119-796-141 and Qsi 015 1- Abrade mating surfaces with
Scotch Brite 7447 and clean with Dupont 4105s or equivalent as per dwg. 2- Install D5152-041 with proseal 890 on
concave surface, 0.100" MIN thick as per dwg using DT10089 (identified right and left) *****MAINTAIN CLAMPING
PRESSURE ON FOR MIN 72HRS***** Proseal Batch: 5176610 EXP: 10/19 PROSEAL CURE
TIME 72 HOURS: Start: 19-8-12 Finish: 19-8-15 3- Install support and shim using
proseal 890 per dwg and clamp in position.
244 - QC5 (QC5- Inspect part completeness to step on W/O)***VERIFY BY _____ BATCH # TO MATCH W/O

246 - Spray Paint (Spray Paint / NDT Room) ***VERIFY BY _____ BATCH # TO MATCH W/O
1- Remove all non-fixed hardware and clean any excess proseal. 2- Scuff tube with Scotch Brite
7447. 3- Mask cuff per note#2. 4- Prime as per dwg and QSI005 5- Apply matte clear as per dwg and QSI005 Clear
Batch: 5184743 Primer 5189223
248 - Spray Paint (Spray Paint / NDT Room) ***VERIFY BY _____ BATCH # TO MATCH W/O
1- Mask underside of tube as per dwg. Mask cuff per note#2. 2- Scuff tube with Scotch Brite 7447
3- Paint outside of crosstube Paint Batch: 5204428
250 - QC14 (QC14- Inspect Spray Paint) ***VERIFY BY _____ BATCH # TO MATCH W/O
252 - Crosstubes-1 (Crosstubes) 1- Re-install non fixed hardware per dwg ***Torque all clamps to 80-100 IN-LBS.*** 2-
Apply a filet-seal of proseal 890 around supports. Allow proseal to dry before inspecting. Proseal 890
Batch: 5176610 EXP: 10/19 PROSEAL CURE TIME 72-HOURS:
Start: _____ Finish: _____
260 - QC5 (QC5- Inspect part completeness to step on W/O) ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL
HAS CURED AS PER DWG.*** ***VERIFY BY _____ BATCH # TO MATCH W/O
275 - DC (Document Control) Photocopy bluefile and create labels as per PPP D119-796-141 chg 004
290 - Packaging3-1 (Identify as per dwg & Stock Location: 16050) Identify and pack for shipping as per PPP D119-796-
141
300 - QC21 (QC21- Final Inspection - Work Order Release)
on w/o 199489

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D119-796-141TRN	Crosstube Turning Detail	1 pcs (1 ea)	130-Crosstubes - Bend - 1	<u>5179593</u>
CR3212-4-08	Rivet	16 Ea (16 ea)	242-Crosstubes - 5 - B4B	
D2873-043	Nut Plate Assembly	4 pcs (4 ea)	242-Crosstubes - 5 - B4B	
D5123-3	Clamp Cushion	8 pcs (8 ea)	242-Crosstubes - 5 - B4B	
D5124-1	Fwd Support	2 pcs (2 ea)	242-Crosstubes - 5 - B4B	
D5152-041	Fwd Post Mount Assembly	2 pcs (2 ea)	242-Crosstubes - 5 - B4B	
D5305-1	Shim	2 pcs (2 ea)	242-Crosstubes - 5 - B4B	
MS21920-24	Clamp	4 Ea (4 ea)	242-Crosstubes - 5 - B4B	
MS21920-22	Clamp	4 Ea (4 ea)	242-Crosstubes - 5 - B4B	

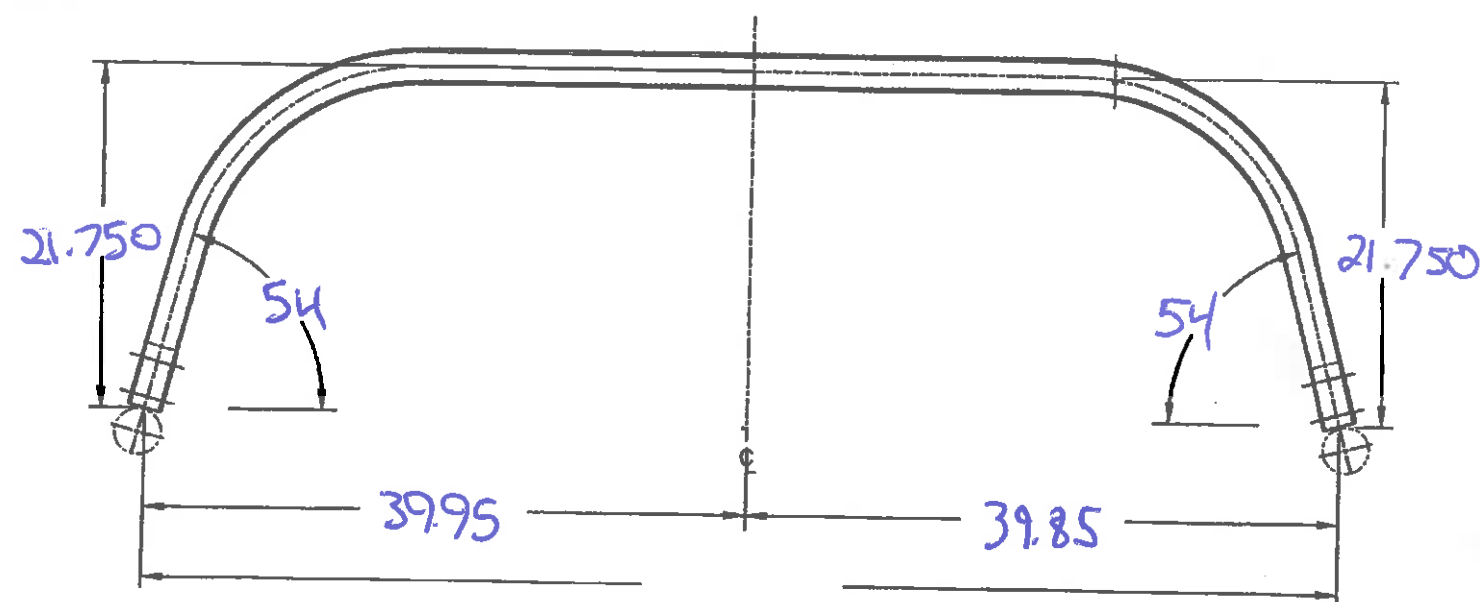
Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
130-Crosstubes - Bend - 1 242-Crosstubes - 5 - B4B 252 - Crosstubes	D119-796-141TRN	1	3	0
	CR3212-4-08	16 5173048	141	0
	D2873-043	4 5186472	51	0
	D5123-3 5160079	8	175	0
	D5124-1 5159936	2	8	0
	D5152-041 5190362	2	10	0
	D5305-1 5149003	2	10	0
	MS21920-22 5181728	4	55	0
	MS21920-24 5065384	4	25	0
	D5149-041 5192135	3		

Part Specifications					
Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Crosstube Assembly (AW119 MKI Fwd)	6.000Inches ± 0.030	6.030 5.970		
2	Crosstube Assembly (AW119 MKI Fwd)	2.516Inches ± 0.005	2.521 2.511		
3	Crosstube Assembly (AW119 MKI Fwd)	2.333Inches + 0.005 - 0.000	2.338 2.333		
4	Crosstube Assembly (AW119 MKI Fwd)	2.333Inches + 0.005 - 0.000	2.338 2.333		
5	Crosstube Assembly (AW119 MKI Fwd)	2.408Inches + 0.005 - 0.000	2.413 2.408		
6	Crosstube Assembly (AW119 MKI Fwd)	2.502Inches + 0.005 - 0.000	2.507 2.502		
7	Crosstube Assembly (AW119 MKI Fwd)	2.596Inches + 0.005 - 0.000	2.601 2.596		
8	Crosstube Assembly (AW119 MKI Fwd)	2.596Inches + 0.005 - 0.000	2.601 2.596		
9	Crosstube Assembly (AW119 MKI Fwd)	6.000Inches ± 0.030	6.030 5.970		
10	Crosstube Assembly (AW119 MKI Fwd)	2.516Inches ± 0.005	2.521 2.511		
11	Crosstube Assembly (AW119 MKI Fwd)	2.333Inches + 0.005 - 0.000	2.338 2.333		
12	Crosstube Assembly (AW119 MKI Fwd)	2.333Inches + 0.005 - 0.000	2.338 2.333		
13	Crosstube Assembly (AW119 MKI Fwd)	2.408Inches + 0.005 - 0.000	2.413 2.408		
14	Crosstube Assembly (AW119 MKI Fwd)	2.502Inches + 0.005 - 0.000	2.507 2.502		
15	Crosstube Assembly (AW119 MKI Fwd)	2.596Inches + 0.005 - 0.000	2.601 2.596		
16	Crosstube Assembly (AW119 MKI Fwd)	2.596Inches + 0.005 - 0.000	2.601 2.596		
17	Crosstube Assembly (AW119 MKI Fwd)	102.260Inches ± 0.020	102.280 102.240		

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DART AEROSPACE LTD		Work Order: 194133
Description: Crosstube Fwd, with Step		Part Number: D119-796-141
Inspection Dwg: D119-796-141 Rev: H		Page 1 of 1

Required Dimension	Min	Max
Height	21.490	21.750
1/2 Span	39.820	40.080
Angle	54°	57°
Total Span	79.640	80.160
Bending Passes	8	--
Crushing	--	6.8%



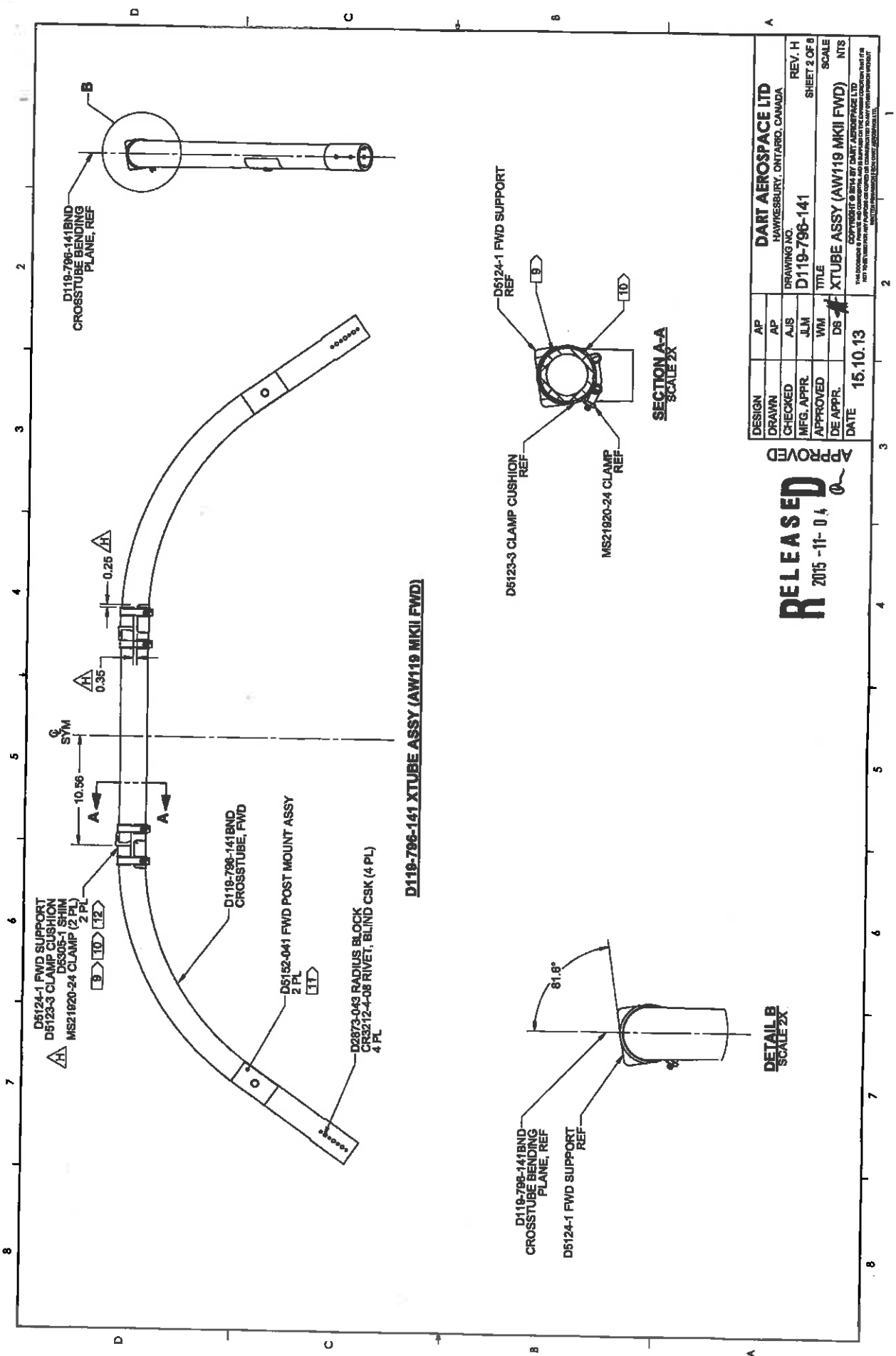
2. 198
2. 470

	Side A	Side B
Bending Passes	11	11
Crushing	5.8%	5.5%
Comments		

2. 2
2. 459

QC15 Inspection	DAS 47
Date	19-09-05

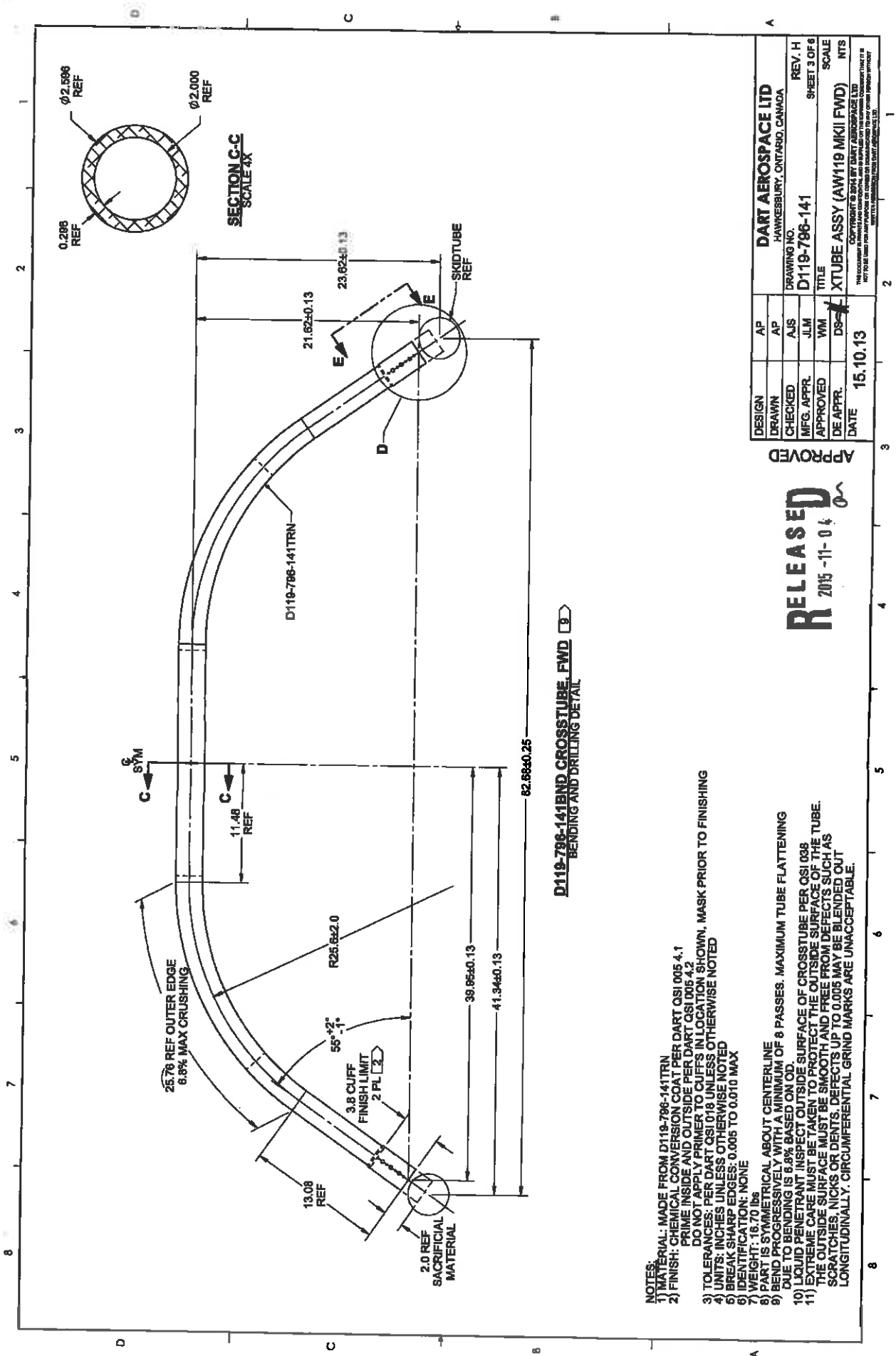
Rev	Date	Change	Revised by	Approved
A	15.04.14	New Issue	KJ	
B	15.11.12	Dwg Rev updated	KJ	
C	16.01.15	Dwg Rev updated	KJ	up



DESIGN	AP	AP	DART AEROSPACE LTD
DRAWN	AP	AP	HAWKESBURY, ONTARIO, CANADA
CHECKED	AJS	AJS	DRAWING NO.
MFG. APPR.	JLM	JLM	D119-796-141
APPROVED	WM	WM	REV. H
DE APPR.	DS	DS	SHEET 2 OF 8
DATE	15.10.13	15.10.13	TITLE
			XTUBE ASSY (AW119 MKII FWD)
			SCALE
			NTS

RELEASED
2015-11-04

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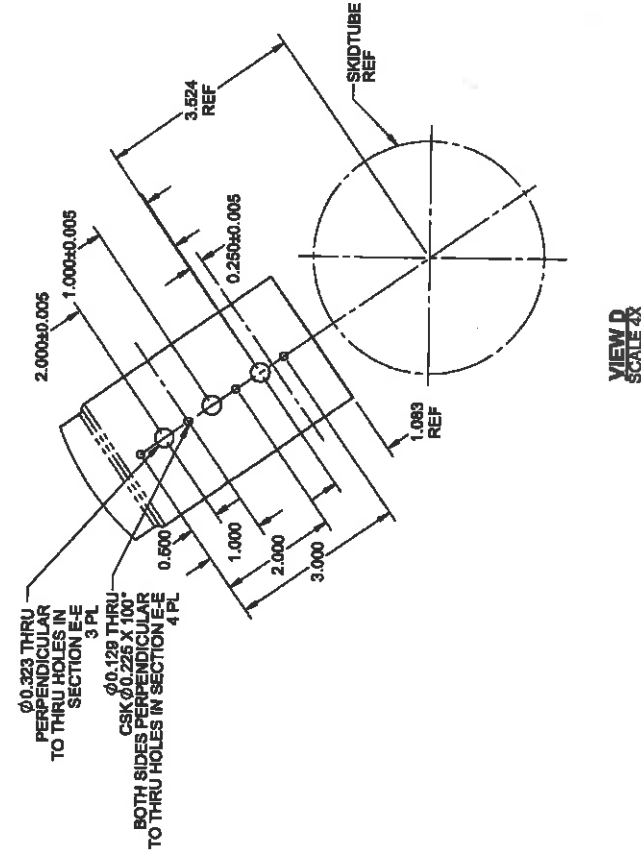
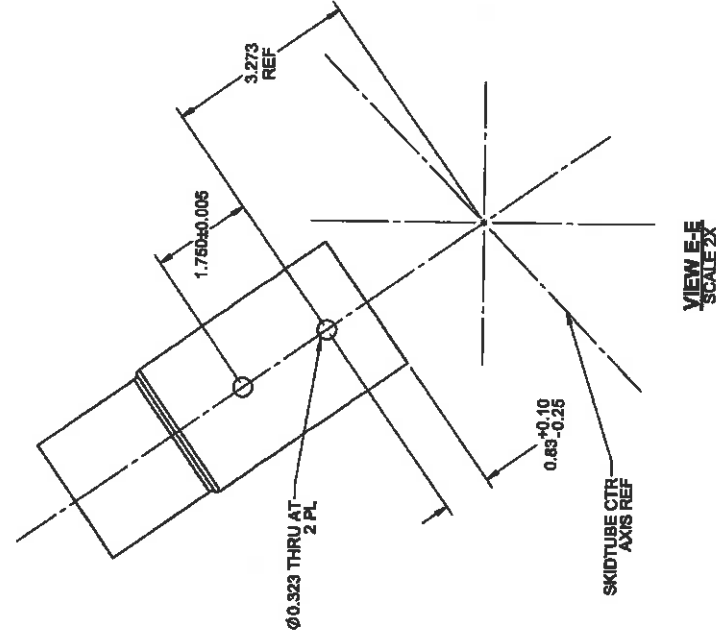


NOTES:
1) MATERIAL: MADE FROM D119-796-141 TRN
2) FINISH: CHEMICAL CONVERSION COAT PER DART OSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART OSI 005 4.2
DO NOT APPLY PRIMER TO CUFFS IN LOCATION SHOWN. MASK PRIOR TO FINISHING
3) TOLERANCES: PER DART OSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.008 TO 0.010 MAX
6) IDENTIFICATION: NONE
7) WEIGHT: 16.70 lb
8) PART IS SYMMETRICAL ABOUT CENTERLINE
9) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING
DUE TO BENDING IS 6.8% BASED ON OD.
10) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER OSI 038
THE OUTSIDE SURFACE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE.
THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS
SCRATCHES, NICKS OR DENTS. DEFECTS UP TO 0.005 MAY BE BLEND OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

DESIGN	AP	AP	DART AEROSPACE LTD
DRAWN	AP	AP	HAWKESBURY, ONTARIO, CANADA
CHECKED	AS	AS	DRAWING NO.
MFG. APPR.	JLM	JLM	D119-796-141
DE APPR.	WM	WM	REV. H
DATE	15.10.13	15.10.13	SHEET 3 OF 8
			TITLE
			X-TUBE ASSY (AW119 MKI FWD)
			SCALE
			NTS

APPROVED
RELEASED
2015-11-04

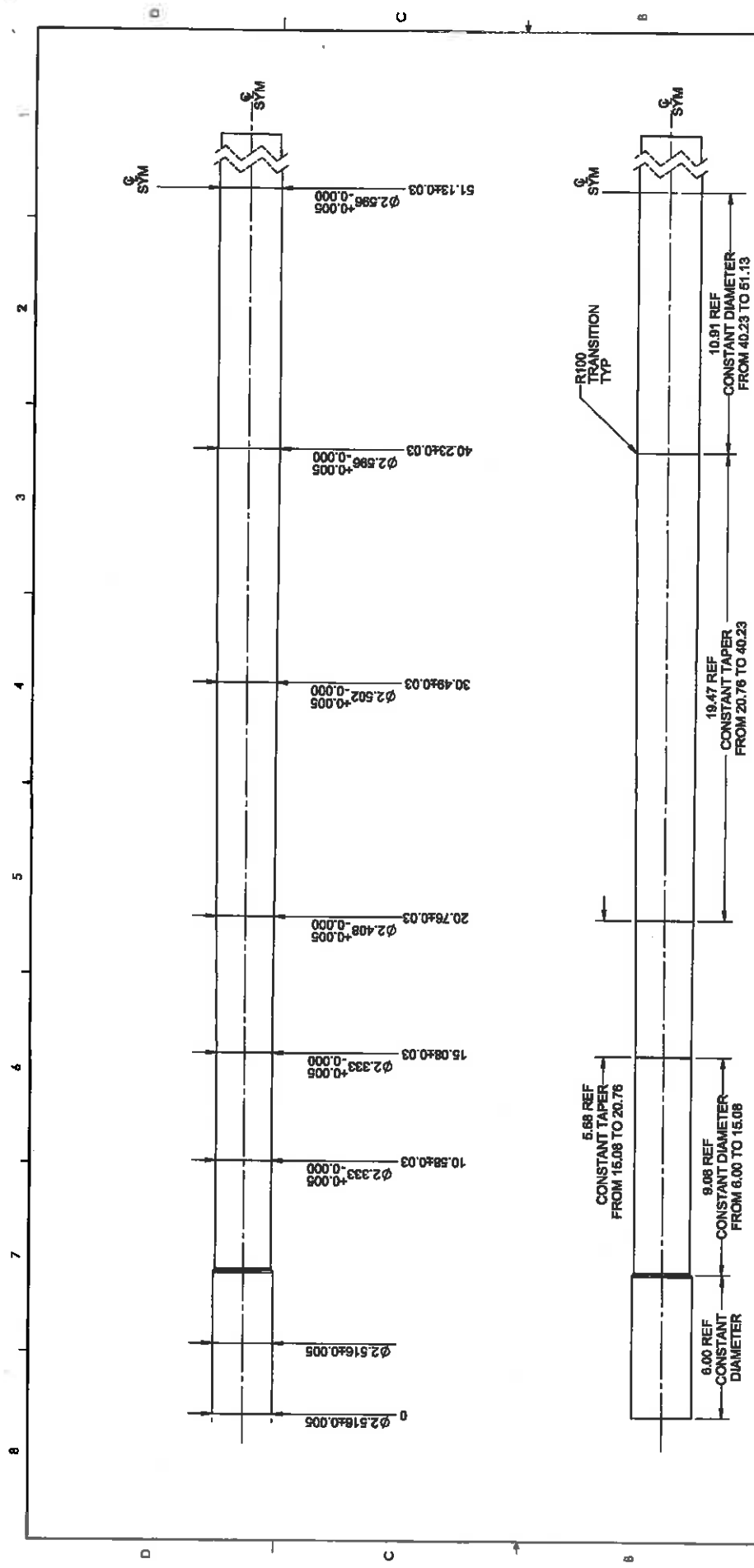
D119-796-141 BEND CROSSTUBE FWD (B)
BENDING AND DRILLING DETAIL



DESIGN	AP	DART AEROSPACE LTD
DRAWN	AP	HAWKESBURY, ONTARIO, CANADA
CHECKED	AJS	DRAWING NO.
MFG. APPR.	JLM	D119-796-141
APPROVED	WM	TITLE
DE APPR.	DS-4	XTUBE ASSY (AW119 MKII FWD)
DATE	15.10.13	SCALE
		NTS

RELEASED
2015-11-04

APPROVED



D119-796-141TRN CROSSTUBE, FWD

- NOTES:
- 1) MATERIAL: MANUFACTURE FROM D8024-103 (PREFERRED) OR D8005-103
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART Q91 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 16.70 lbs
 - 8) PART IS SYMMETRICAL ABOUT CENTERLINE

RELEASED
2015-11-04

DESIGN	AP	AP	DART AEROSPACE LTD
DRAWN	AP	AP	HAWKESBURY, ONTARIO, CANADA
CHECKED	AJS	AJS	DRAWING NO.
MFG. APPR.	JLM	JLM	D119-796-141
APPROVED	WM	WM	REV. H
DE APPR.	DS	DS	SHEET 5 OF 8
DATE	15.10.13	15.10.13	TITLE
			XTUBE ASSY (AW119 MKII FWD)
			SCALE
			NTS

CHAMFER ID
AS REQUIRED
FOR TOOLING

F

0.258 REF
NOMINAL WALL

0.167 REF
NOMINAL WALL

0.167 REF
NOMINAL WALL

0.204 REF
NOMINAL WALL

0.251 REF
NOMINAL WALL

0.234±0.03
NOMINAL WALL

0.298 REF
NOMINAL WALL

D119-796-141TRN CROSSTUBE, FWD
SUPPLEMENTAL VIEW: NOMINAL WALL THICKNESS

RD.10
2PL



DETAIL F
SCALE 2X

RELEASED
2015-11-04

APPROVED

DESIGN	AP	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
DRAWN	AP	AP	
CHECKED	AJS	REV. H	
MFG. APPR.	JLM	D119-796-141	SHEET 6 OF 8
APPROVED	WM	TITLE	XTUBE ASSY (AW119 MKI FWD)
DE APPR.	DS	SCALE	NTS
DATE	15.10.13		

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FOR THE PURPOSES OF THE ATIA
CONFIDENTIAL & SHAL NOT BE DISCLOSED TO THE PUBLIC
FOR THE PURPOSES OF THE ATIA

NCR No. _____

Job: _____ Part No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐		DEPARTMENT/PROCESS Skid-tube ☐ Cross tube ☐ Eng. (Non-AW) ☐ Machining ☐ Small Fab ☐ Prod. Eng. Coord. ☐ Large Fab ☐ Finishing ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐																										
Date :	Sequence #:	QTY Affected :		MRB (QS1042)																										
Description Work Order Deviation		Disposition																												
Root Cause Operator Manufacturing Process Equip/Tooling Handling/Preservation Material Product Improvement Process Improvement Human Factors		FAULT CATEGORY <table><tr><td rowspan="7">Pressure/Forced</td><td rowspan="7">Contamination</td><td rowspan="7">Power Loss/Surge</td><td rowspan="7">Positioned Wrong</td></tr><tr><td rowspan="6">Misaligned/off center</td><td rowspan="6">Folio/Program</td><td rowspan="6">Outside Tolerance</td></tr><tr><td rowspan="5">BOM/Route</td><td rowspan="5">Grain Direction</td><td rowspan="5">Drawing</td></tr><tr><td rowspan="4">Broken/Damage/Defect</td><td rowspan="4">Weld</td><td rowspan="4">Finish</td></tr><tr><td rowspan="3">Incomplete/Unclear Instructions</td><td rowspan="3">Wrong Stock Pulled</td><td rowspan="3">Part Lost/Missing</td></tr><tr><td rowspan="2">Drill Holes</td><td rowspan="2">Out of Sequence</td><td rowspan="2">Misread</td></tr><tr><td>Fit/Function</td><td>Off-set/Set-up</td></tr><tr><td>Other/Details:</td><td></td><td></td><td></td></tr></table>				Pressure/Forced	Contamination	Power Loss/Surge	Positioned Wrong	Misaligned/off center	Folio/Program	Outside Tolerance	BOM/Route	Grain Direction	Drawing	Broken/Damage/Defect	Weld	Finish	Incomplete/Unclear Instructions	Wrong Stock Pulled	Part Lost/Missing	Drill Holes	Out of Sequence	Misread	Fit/Function	Off-set/Set-up	Other/Details:			
																									Pressure/Forced	Contamination	Power Loss/Surge	Positioned Wrong		
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BOM/Route	Grain Direction	Drawing																												
			Broken/Damage/Defect	Weld	Finish																									
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										Drill Holes	Out of Sequence	Misread																		
						Fit/Function	Off-set/Set-up																							
Other/Details:																														
Completed By																														
		Lead hand / Supervisor																												
		QC / QA Coordinator																												



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

POHB044190



Supplier: SKY002-VC Skyservice 6120 Midfield Road Mississauga ON L5P 1B1 Canada Phone: 905-678-5636 Fax: 905-678-5841	PO No: POHB044190 PO Date: 8/1/19 Due Date: 8/2/19 Purchase Order Revision: Revision Date: Ship-To Contact: Guerin, Kimberley Phone: 613-632-5200 Ext: 298 kguerin@dartaero.com
Attention: Jenne, Heather	
Ship To: 1270 Aberdeen Street Hawkesbury ON K6A 1K7 Canada Phone: 613-632-5200	Via: Ground Pymt Terms: Net 30 Freight Terms: Special Comments:

Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	198181	D130-1048-141	EC130 Fwd Crosstube : TC STC SH19-4 Issue 1 (Outsource process - NDT per QSI038 4.1) *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** ISSUE P/O: Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order NDT C OF C IS REQUIRED	Firmed	-	8/2/19	1 pcs	0 pcs	1 pcs	\$169.00/pcs	\$169.00
2	194132	D119-796-141	Fwd Crosstube Installation Without Step (No Hardware) : TC STC SH14-45-Issue 1, FAA STC SR03504NY 15/01/28, EASA STC 10052022 Revision 1 15/02/13, DGCA INDIA LoA 07-09/2011-AED (Part) 15/07/16, BRAZIL STC 2015S07-16 15/07/30, CAAP PHILIPPINES LoA 16/05/11, CHINA VSTC0757 16/07/22, RUSSIA STC CT316-A119 16/08/11, DGAC INDONESIA STC SR025 18/02/19 Outsource2 (Outsource process - NDT per QSI038 4.1) *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038Or Issue P/O: LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	Firmed	-	8/2/19	1 pcs	0 pcs	1 pcs	\$169.00/pcs	\$169.00

Plex 8/2/19 8:57 AM Dart.Guerin.Kimberley



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER
POHB044190



Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
	194133		1x AUG 0 2 2019	Ordered	-	8/2/19	1 pcs	0 pcs	1 pcs	\$169.00/pcs	\$169.00
	194134		1x AUG 0 2 2019	Ordered	-	8/2/19	1 pcs	0 pcs	1 pcs	\$169.00/pcs	\$169.00
	194135		1x AUG 0 2 2019	Ordered	-	8/2/19	1 pcs	0 pcs	1 pcs	\$169.00/pcs	\$169.00
Sub Total:							4	0	4		\$676.00

AS 10 89

Grand Total: \$845.00

Order Notes

Procurement Quality Clauses
A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retension of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

		Work Order Traveler Sky Service F.B.O. Inc.	
10105 Ryan Avenue, Dorval, Quebec, H9P 1A2		TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385	
WO #: MWO41275	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: POHB044190 ✓
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT INSPECTION (LIQUID PENETRANT) ON 5 CROSSTUBES

ITEM ID: D119-796-141 FWD CROSSTUBE INST. WITHOUT STEPS.

- 1 - WORK ORDER ID#: 194132 ✓
- 2 - WORK ORDER ID#: 194133 ✓
- 3 - WORK ORDER ID#: 194134 ✓
- 4 - WORK ORDER ID#: 194135 ✓

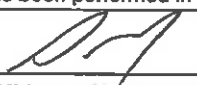
DAS
40
9-89

ITEM ID: D130-1048-141 EC130 FWD CROSSTUBE.
5 - WORK ORDER ID#: 198181 ✓

Action Taken:				Date:	Initial/Stamp:	
LIQUID PENETRANT INSPECTION CARRIED OUT ON ITEMS LISTED ABOVE (ITEMS 1-5) AS PER ASTM1417M-16				2 Aug 2019		
NO CRACK FOUND						
PEN ZL-37, MPO23206, CLEANER SKC-S MPO15030, EMU. MPO15896, DEV. MPO23451, UV LIGHT M-20142						
Description	Location	P/N	Qty	Batch	S/N Off	S/N On

RECEIVED
AUG 02 2019
DART AEROSPACE LTD.

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:		ACA/SCA Stamp	Date:
Name: ANTONINO MARCHETTA			2 Aug 2019

Change Record

PAGE 1 OF 1

Part Number: D119-796-141

Description: CROSSTUBE INSTALLATION, FWD STD, W/O PEG STEPS

[illegible]